CLAIMS:

1. A thermally-actuated cartridge having:

a temperature-sensitive element;

a movable member associated with the temperature-sensitive element and which moves when the temperature-sensitive element reaches a certain temperature; and

a body surrounding the movable member and having an external opening through which the movable member can protrude;

the arrangement being such that when the temperature-sensitive element reaches said certain temperature, the movable member moves and protrudes or protrudes further through the opening.

2. The cartridge of Claim 1, wherein the movable member is an axially-movable rod.

3. The cartridge of Claim 2, wherein the body comprises a cylindrical casing mounted by a mounting member, said opening being in the mounting member.

4. The cartridge of any of the preceding Claims, wherein the body is extended, the temperature-sensitive element being adjacent one end of the body and the opening being adjacent the other end of the body.

5. The cartridge of Claim 4, wherein the casing is an elongate cylinder and the mounting member is cylindrical with a bore in one end receiving an end portion of the cylinder, said opening being at the other end.

6. The cartridge of any of the preceding Claims, wherein the temperature-sensitive element comprises a heat-softenable or meltable material which when hard prevents movement of the movable member and when soft or molten permits movement of the movable member.

7. The cartridge of any of the preceding Claims, and comprising a head and a casing, the temperature-sensitive element being such that the head can move relative to

the casing when said certain temperature is reached, the movable member being in contact with or being contactable by the head when the head moves so that the movement of the head causes the movable member to move and protrude or protrude further through said opening.

8. The cartridge of both Claim 6 and Claim 7, wherein the casing has a recess, the movable member is within the casing, and the head has a detent engaging in the recess such that force on the head in the direction of its movement with respect to the casing would cam the detent out of the recess in a direction generally at right angles to the direction of movement of the head and release the head, thereby causing the movable member to move, the heat-softenable or meltable material being between the detent and the casing and being such that said force applies a force on the heat-softenable or meltable material generally at right angles to the direction of movement of the head.

9. The cartridge of Claim 8, wherein the heat-softenable or meltable material is in tension under the action of said force on the head.

10. The cartridge of Claim 9, wherein the head comprises an end piece which is adjacent or abuts the end of the movable member, the end piece having elongate detents which extend outside the casing and parallel to the movable member.

11. The cartridge of any of the preceding Claims, and containing no spring, the cartridge being for a mechanism in which an external force is applied to the cartridge so that the cartridge actuates when the thermo-sensitive element reaches said certain temperature.

12. The cartridge of any of Claims 1 to 10, and containing a spring which causes the movable member to move when the temperature-sensitive element reaches said certain temperature.

13. A thermally-actuated cartridge, substantially as herein described with reference to the accompanying drawings.

14. A thermally-actuated mechanism, comprising:

a movable operative member which can move between a first position and a second position;

means biasing the operative member into the first position; and

a thermally-actuated cartridge for retaining the operative member in the second position, against the biasing of the biasing means, the cartridge comprising:

a temperature-sensitive element;

a head associated with the temperature-sensitive element, for movement when the temperature-sensitive element reaches a certain temperature to thereby release the operative member;

a movable member which is caused to move when the head moves; and

a body surrounding the movable member and having an external opening through which the movable member can protrude;

the arrangement being such that when the thermally-sensitive element reaches said certain temperature, the movable member moves and protrudes or protrudes further through the opening.

15. The mechanism of Claim 14, wherein the cartridge is as in any of Claims 1 to 13.

16. The mechanism of Claim 14 or 15, wherein the protruding movable member actuates a microswitch.

17. The mechanism of any of Claims 14 to 16, and being a fire damper for an air flow duct, the operative member being a damper flap which is pivotally mounted for movement from said second position allowing air to flow along the duct to said first position substantially preventing air flowing along the duct.

18. A damper for an air flow duct comprising:

ducting;

a damper element in the ducting and movable between a first, closed position and a second, open position;

biasing means biasing the damper element into its closed position; and

retention means for retaining the damper element in an open position;

the retention means comprising:

an actuating member;

a retention member which is fixed relative to the damper element and can be secured by the action of the actuating member to retain the damper element in an open position, which securing can be released by movement of the actuating member to release the damper element so that the latter is moved by the biasing means into its closed position;

a body member which is fixed to an opening in the circumferential wall of the ducting and has a through-hole which passes from the exterior to the interior of the body member; and

a movable member in the through-hole and arranged so that it moves when the actuating member moves, the movable member being arranged such that it protrudes or protrudes further from the exterior of the body member when it moves to release the damper element.

19. The damper of Claim 18, and comprising a fixed backing piece on the other side of the retention member to the movable member so that the movable member can press the retention member against the backing piece.

20. The damper of Claim 18, and comprising a sprung piece fixed to the ducting and acting as the engaging member such that the movable member can engage the sprung piece to press the sprung piece against the retention member.

21. The damper of any of Claims 18 to 20, wherein the damper element is rotatably mounted for movement between its closed position and an open position, and the retention member is generally sector shaped.

22. The damper of any of Claims 18 to 21, wherein the retention member has a number of recesses or cut-outs for engagement directly or indirectly by the actuating member, to provide a number of different open positions of the damper element, of various degrees of opening, a camming arrangement being provided so that the respective recess or cut-out will cease to be engaged and the damper element will move

into its closed position when the actuating member exerts no pressure on the retention member.

23. The damper of any of Claims 18 to 22, wherein the protruding end portion of the movable member actuates a microswitch.

24. The damper of any of Claims 18 to 22, wherein the body member mounts a thermally-actuated assembly for releasing the retention member if a certain temperature is reached.

25. The damper of Claim 24, wherein the body member and movable member are comprised in the cartridge of any of Claims 1 to 13.

26. The damper of Claim 24, wherein the thermally-actuated assembly is in the form of a removable cartridge, or of Claim 25 wherein the cartridge is removable.

27. The damper of Claim 26, modified in that there is no thermally-actuated assembly, the cartridge not being present, the retention member being releasable by acting externally on said movable member.

28. The damper of any of Claims 18 to 26, wherein the retention member is releasable by acting externally on said movable member.

29. The damper of Claim 28, wherein the movable member is biased inwards by external biasing means which can be released to release the retention member.

30. The damper of Claim 29, wherein the external biasing means is a solenoid.

31. A damper for an air flow duct comprising:

ducting;

a rotary damper element carried on an axle in the ducting and movable between a closed position and an open position;

biasing means biasing the damper element into its closed position; and

retention means retaining the damper element in an open position;

the retention means comprising:

an actuating member;

a retention member which is fixed relative to the damper element and is secured by the action of the actuating member to retain the damper element in an open position, which securing can be released to release the damper element so that it is moved by the biasing means into its closed position; and

a support member fixed to the circumferential wall of the ducting and supporting at least part of the retention means, the support member having a base and at least a first limb, at a substantial angle to the base, which limb is adjacent the inner circumferential wall of the ducting and has a notch on its open end passing over the damper element axle; and

securing means securing the limb to the inner circumferential wall of the ducting at a position between the axle and the base of the support member.

32. The damper of Claim 31, wherein the support member has a further limb on the opposite side of the retention member to the actuating member, which further limb acts as a backing piece.

33. The damper of Claim 31, wherein the support member has a further limb in the form of a sprung piece on the same side of the retention member as the actuating member, which sprung piece is pressed against the retention member by the actuating member when the damper flap is retained in an open position.

34. The damper of both Claim 32 and Claim 33, whereby when the damper flap is retained in an open position, the actuating member presses the sprung piece against the retention member which in turn is pressed against the backing piece.

35. The damper of any of Claims 31 to 34, wherein the first limb of the support member is formed as an initially separate extension piece which is secured to the remainder of the support member.

36. The damper of any of Claims 31 to 35, wherein the retention means comprise a body member which is fixed to an opening in the circumferential wall of the ducting and which carries the actuating member.

37. The damper of Claim 36, wherein there is a tapped hole through said first limb adjacent the base of the support member, into which hole is screwed the body member.

38. The damper of any of Claims 31 to 37, wherein the actuating member forms part of a thermally-actuated assembly for releasing the retention member if a certain temperature is reached.

39. The damper of Claim 38, wherein the actuating member is comprised in the cartridge of any of Claims 1 to 13.

40. The damper of any of Claims 31 to 37, and including means externally of the ducting for acting on the actuating member to release the retention member.

41. The damper of any of Claims 31 to 40 and being also as in any of Claims 18 to 30.

42. A damper, substantially as herein described with reference to the accompanying drawings.

43. An airflow installation comprising the mechanism of Claim 14 or the fire damper of any of Claims 18, 31 or 42.